IN THE CLAIMS

Claim 1 (currently amended). A process for the treatment of dust- and oxygen-containing exhaust gases, which contain sulfur oxides and nitrogen oxides, at temperatures in the range from 200°C to 500°C by means of reducing agents in a reactor ~~(19)~~ which is equipped with solid catalyst ~~(20)~~ with flow passages, in which the free opening surface of the catalyst ~~(20)~~ is more than 50 % and in which the passages of the catalyst ~~(20)~~ have a hydraulic diameter of more than 2 mm, ~~characterized in that~~ **wherein**

a) the treatment in the reactor ~~(19)~~ is performed in the presence of and/or with the addition of one or more substances selected from **the group consisting of** free oxides, carbonates, hydroxides of calcium, magnesium, sodium and potassium, **said substances being present in or added to said exhaust gases prior to contact of said exhaust gases with said catalyst,**

b) during the treatment, the operating conditions of the gas flow in the free reaction space are adjusted corresponding to the Froude numbers in the range of

$$1 \leq 3/4 \cdot \frac{\mu^2}{g \cdot d_k} \cdot \frac{\rho_g}{\rho_k - \rho_g} \leq 100$$

with

$$\frac{\mu^2}{g \cdot d_k} = Fr^2 .$$

Claim 2 (currently amended). The process as claimed in claim 1, ~~characterized in that~~ **wherein** in the reactor ~~(19)~~ honeycomb and/or plate catalysts (20) are

used, which beside titanium dioxide and tungsten contain more than 0.5 wt-%, ~~preferably 2-8 wt-%,~~ vanadium pentoxide.

Claim 3 (currently amended). The process as claimed in ~~any of claims 1 and 2, characterized in that~~ claim 1, wherein ~~the treatment is performed in the presence of and/or with the addition of one or more substances selected from~~ said free oxides, carbonates, hydroxides of calcium, magnesium, sodium and potassium ~~with~~ have an average particle size d_{50} of between 5 µm and 100 µm.

Claim 4 (currently amended). The process as claimed in ~~any of claims 1 to 3, characterized in that~~ claim 1, wherein ~~the treatment of the exhaust gas is preferably performed in the presence of and/or with the addition of one or more substances selected from~~ said one or more substances are free oxides, carbonates, hydroxides of calcium.

Claim 5 (currently amended). The process as claimed in ~~any of claims 1 to 4, characterized in that~~ claim 1, wherein as reducing agent there are used NH_3-releasing compounds ~~such as~~ selected from the group consisting of $(NH_4)_2SO_4$, $(NH_4)_2CO_3$, $(NH_4)HCO_3$, $(COONH_3)_2H_2O$, $HCOONH_4$, NH_3, NH_4OH, H_2O-CO-NH_2, NH_2CN, $Ca(CN)_2$, NaOCN, $C_2H_4N_4$, $C_3H_6N_6$ ~~and~~ , NH_3-containing waste waters from photochemical plants, ~~singly or several of them~~ and combinations thereof.

Claim 6 (currently amended). The process as claimed in claim 5, ~~characterized in that~~ wherein before entry of the exhaust gases in the reactor ~~(18)~~, the NH_3-releasing compounds are ~~incorporated in the flue gas stream~~ added to them, in ~~the~~ gaseous, liquid or solid ~~condition~~ form and at temperatures in the range ~~between~~ of from 200°C ~~and~~ to 1000°C.

Claim 7 (currently amended). The process as claimed in ~~any of claims 5 and 6, characterized in that~~ claim 6, wherein the NH_3-releasing compounds are ~~incorporated in the flue~~ added to the exhaust gas stream in the form of dilute aqueous solutions at temperatures in the range ~~between~~ of from 300°C ~~and~~ to 550°C.

Claim 8 (currently amended). The process as claimed in ~~any of claims 1 to 7, characterized in that the presence or the addition of~~ claim 1, wherein said one or more substances selected from the group consisting of free oxides, carbonates, hydroxides of calcium, magnesium, sodium and potassium are present in or added to the ~~flue~~ exhaust gas stream ~~preferably is effected~~ before ~~the use of~~ the NH_3-releasing compounds are added.

Claim 9 (currently amended). The process as claimed in ~~any of claims 1 to 8, characterized in that the~~ claim 1, wherein said exhaust gases enter ~~flow to~~ the reactor ~~(18) equipped with the catalyst (20) is effected~~ from above or from below.

Claim 10 (currently amended). The process as claimed in ~~any of claims 1 to 9, characterized in that the flow to~~ claim 9, wherein said exhaust gases enter the reactor ~~(19) equipped with the catalyst (20) is effected~~ alternately from above and from below.

Claim 11 (currently amended). The process as claimed in ~~any of claims 1 to 10, characterized in that beside~~ claim 1, wherein in addition to the breakdown of sulfur oxides and nitrogen oxides, the reactor ~~(19) equipped with the catalyst (20)~~ is at the same time used for the breakdown of halogen compounds, halogenated organic compounds, hydrocarbons and CO.

Claim 12 (currently amended). The process as claimed in ~~any of claims 1 to 11, characterized in that~~ claim 1, wherein ~~the reactor (19) equipped with the catalyst (20) is used for the breakdown of sulfur oxides and nitrogen oxides in~~ said exhaust gases are dust-laden exhaust gases generated in the chemical and metallurgical industries, ~~as well as~~ in the cement and lime industries, in power plants ~~and~~ or in garbage incineration plants and are supplied to said reactor ~~in the process flow~~ at temperatures in the range between 200°C and 500°C without the need for additional preheating ~~of the exhaust gas~~.

Claim 13 (currently amended). An apparatus for the treatment of dust- and oxygen-containing exhaust gases of a cement factory, which exhaust gases contain sulfur oxides and nitrogen oxides, ~~characterized in that the~~ comprising a reactor ~~(19) equipped with~~ within which a catalyst ~~(20)~~ with flow passages, in which the free opening surface of the catalyst is more than 50 % and in which the passages of the catalyst have a hydraulic diameter of more than 2 mm is disposed, ~~in the exhaust gas stream behind the~~ which reactor is preceded by a cyclone heat exchanger ~~(13) (and before the raw material grinder (21) and before the bypass I to the evaporative cooler (22))~~.

Claim 14 (currently amended). The apparatus as claimed in claim 13, ~~characterized in that~~ adapted for the addition of reducing agents and raw meal ~~NH_3-releasing compounds~~ to the cyclone heat exchanger ~~preferably is effected in the vicinity of the raw meal addition (12) and/or shortly behind the raw meal addition (12), preferably before the last cyclone (Z1)~~.

Claim 15 (currently amended). An apparatus according to claim 13 for the treatment of dust- and oxygen-containing exhaust gases of a power plant, which exhaust gases contain sulfur oxides and nitrogen oxides as well as halogen compounds, halogenated organic compounds, hydrocarbons and CO, ~~as claimed in any of claims 1 to 12, characterized in that~~ wherein the reactor ~~(19) equipped with catalyst (20)~~ is disposed in an ~~the~~ exhaust gas stream behind ~~the~~ a boiler ~~(27)~~ and before ~~the~~ an air preheater ~~(26)~~.

Claim 16 (new). The process according to claim 2, wherein said solid catalyst comprises 2-8% wt vanadium pentoxide.

Claim 17 (new). The process of claim 14, wherein said apparatus is adapted for the addition of said reducing agents in the vicinity of the addition of said raw meal.

Claim 18 (new). The process of claim 13, wherein said apparatus is adapted for the addition of a reducing agent and a raw meal, wherein said raw meal is added to said cyclone heat exchanger and said reducing agent is added between said cyclone heat exchanger and said reactor.

Claim 19 (new). The process of claim 13, wherein said cyclone heat exchanger is a plurality of cyclone heat exchangers arranged in series, and said apparatus is adapted for the addition of clinker to one of said cyclone heat exchangers, and the addition of a reducing agent at a point between the reactor and the addition point of said raw meal, but before the last cyclone heat exchanger is said series, preceding the reactor.